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Letter to the editor

**Association of restless legs syndrome, chronic motor tic disorder
and migraine with aura - a case of a single family**

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Sirs,

Over the past 20 years there has been a growing interest in the pathophysiology and the possible association between involuntary movement disorders like RLS and Tourette syndrome (TS) [1, 2]. Indeed, recent findings have found support for a common genetic background of RLS and TS. Lespérance *et al.* [3] reported a high prevalence of RLS in children and adolescents with TS pointing out that the occurrence of RLS in individuals with TS seems to be linked to maternal RLS. There is however little data supporting the association of these syndromes with migraine [4, 5]. The study by Kwak *et al.*, 2003 [4] suggested that patients with TS show a higher co-morbidity with MA than in the general population. In turn Lerner [5] examined a family suffering from MA and RLS, suggesting a genetic link between the two disorders. This finding supports the hypothesis of a shared genetic aetiology of RLS and migraine proposed in a previous publication [6]. However, to the best of our knowledge, the co-morbidity of the three disorders, RLS, TS, and MA has not yet been reported.

Here we report the case of 59-year-old woman and her immediate family, who, at the time of examination, presented with the rare combination of restless legs syndrome (RLS), chronic motor tic disorder, and migraine with aura (MA). The patient presented to the clinic with choreatiform movements of the right shoulder, as well as twitches of the face-muscles on the same side. These were triggered by stress and agitation and brought a feeling of relief to the sensation of tenseness felt before. These movements were never accompanied by vocalisations and thus fit the criteria of a chronic motor tic disorder according to the International Classification of Diseases, 10th revision (2007). Since the age of 20, she had been complaining about aching legs, including paresthesia, which emerged while being in a recumbent position. These became worse in the evening and night hours and were associated

with the urge to move. Laboratory analyses including iron status were normal. Therefore, conforming to the criteria of International Classification of Sleep Disorders, 2nd edition, idiopathic RLS was diagnosed. During polysomnography, slightly increased periodic leg movements during sleep were found (index 16/h). A therapy-trial with pramipexole (up to 0.5 mg/d) for one month aggravated involuntary motor movements and did not lead to any improvement of RLS-symptoms while clonazepam (0.5 mg) in the evening had a positive effect on both RLS and motor tic-disorder. Furthermore, the patient was afflicted with visual aura without headache meeting the criteria of The International Classification of Headache Disorders, 2nd edition.

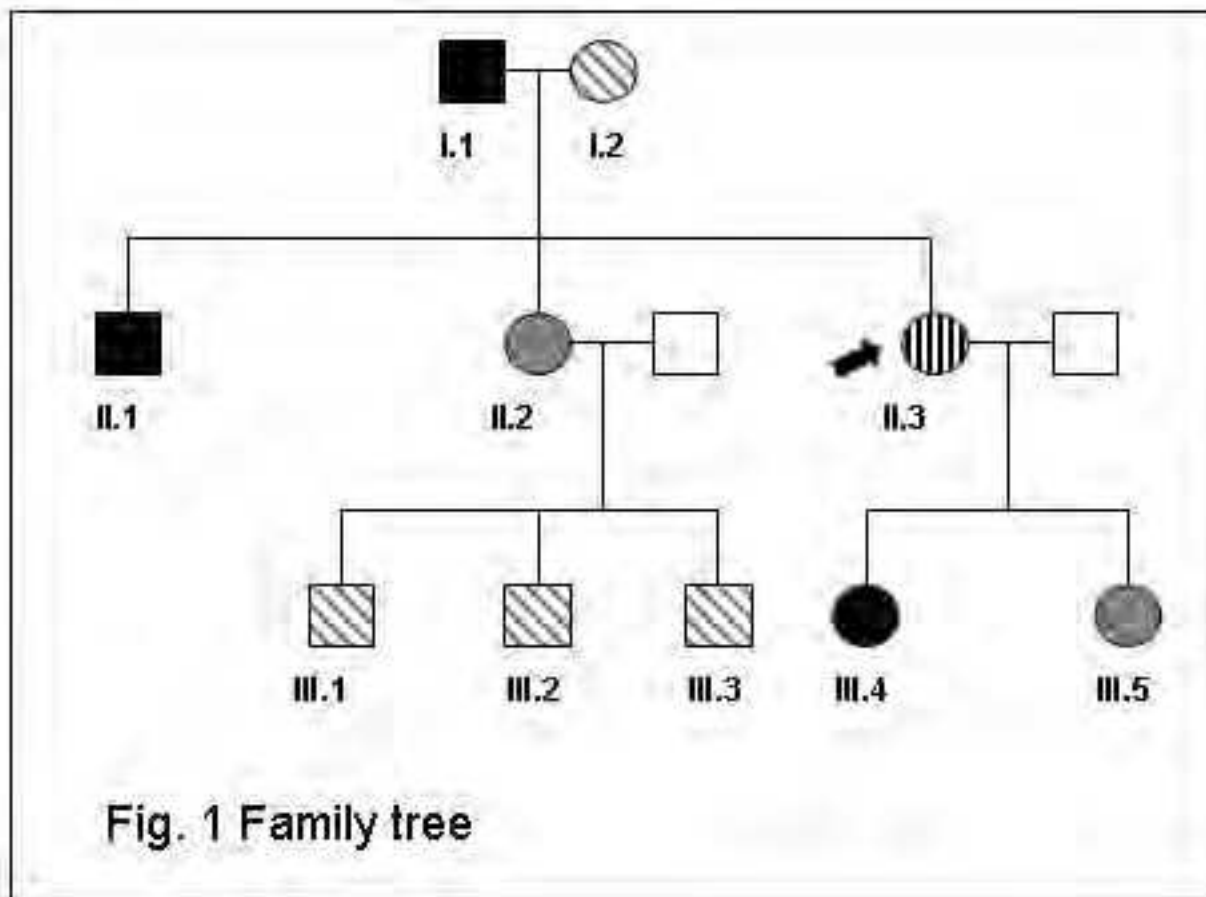
Family history (see Fig 1), revealed that her father (I.1), brother (II.1), and one of two daughters (III.4) displayed all three disorders while her sister (II.2) and the other daughter (III.5) suffered from MA and RLS, without signs of motor tic disorder. Additionally, three nephews (III.1/2/3) exclusively exhibited MA.

Finally, the co-occurrence of these syndromes in this family suggests that there might be a pathophysiological relationship between RLS, chronic motor tic disorder and MA. Some similar clinical characteristics of RLS and motor tic disorder, in particular the urge to move which precedes it and the subsequent alleviation by motor activity, indicate an implication of the basal ganglia and the limbic network in the pathophysiology of the two disorders [7, 8]. Moreover, Barbanti *et al.* [9] concluded that the high prevalence of migraine in TS might be linked to a dysfunction of the extrapyramidal system.

Further genetic analyses are needed to confirm our hypothesis and may lead to new therapeutic strategies.

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- ▨ Migraine aura without headache, RLS, Motor-Tic-Disorder
- MA, RLS, Motor-Tic-Disorder
- MA, RLS
- ▨ MA